## What is claimed is:

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1. A processor, comprising:

a physical register file populated by a number of registers;

an instruction decoder;

a register alias table coupled to the instruction decoder;

an active list populated by a number of entries, the entries include an old field and a new field; and

a free list of unallocated physical registers reclaimed from said active list.

- 2. The processor of claim 1, further comprising an instruction window buffer having dispatched 1 2 instructions.
  - 3. The processor of claim 2, wherein said dispatched instructions correlate to evicted allocated physical registers, said free list reclaims said evicted physical registers when said dispatched instructions retire.
  - The processor of claim 1, wherein said instruction writes to said allocated physical register. 4.
  - 5. The processor of claim 1, wherein said allocated physical register is allocated from said free list.
- 6. The processor of claim 1, further comprising a misprediction condition wherein said free list 1 2 reclaims mispredicted said allocated physical registers from said new field.
- The processor of claims 1, further comprising a bit field within said active list, said bit field 7. 1 comprising at least one bit to indicate whether the instruction is retired correctly. 2
- 8. A method for recovering registers in a processor, comprising: 1 detecting an exception correlating to an instruction associated with an entry on an active list; 2 moving a pointer on said active list to an old field and a new field after said entry; and 3 4



- 1 9. The method of claim 8, further comprising flushing instructions in an instruction window
- 2 buffer after said instruction associated with said misprediction condition.
- 1 10. The method of claim 9, further comprising overwriting entries in said active list.
- 1 11. The method of claim 8, further comprising allocating unallocated physical registers from said
- 2 free list to a register alias table.
- 1 12. The method of claim 11, further comprising moving evicted physical registers from said
- 2 register alias table to said active list.
- 1 13. A method for recovering registers in a processor, comprising:
  - reading a bit in an active list; and
  - reclaiming a physical register from said active list to a free list according to said bit.
  - 14. The method of claim 13, further comprising overwriting an entry in said active list.
  - 15. The method of claim 13, further comprising setting said bit during a misprediction condition.
  - 16. The method of claim 13, wherein said reclaiming includes reading said physical register from an old field in said active list.
- 1 The method of claim 13, wherein said reclaiming includes reading said physical register from
- 2 a new field in said active list.
- 1 18. The method of claim 13, wherein said reading includes reading said bit in a bit field within
- 2 said active list.

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- 1 19. A register renaming apparatus within a processor, comprising:
- 2 a register alias table;
- a first set of registers renamed by said register alias table;

- an active list having an old field and a new field that correlate to said registers; and a free list comprising a second set of registers reclaimed from said active list.
- 20. The apparatus of claim 19, wherein said said first set of registers correlate to non-retired instructions.
- 1 21. The apparatus of claim 19, wherein said active list includes a bit field.
- 1 22. The apparatus of claim 19, further comprising a pointer for said active list.